

OCT 24 2003

TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.

R. 35636

In Re Application Of: **Lothar FAUTH**

Serial No.
09/719,469

Filing Date
April 18, 2001

Examiner
K. Tamai

Group Art Unit
2834


Invention: **METHOD FOR MOUNTING A WORM ON AN ARMATURE SHAFT OF AN ARMATURE OF AN ELECTRIC MOTOR, AND ARMATURE PRODUCED BY THE METHOD**

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **July 11, 2003**.

The fee for filing this Appeal Brief is: **\$330.00**

- ☐ A check in the amount of the fee is enclosed.
- ☒ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **07-2100**


Signature

Dated: **October 24, 2003**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Lothar FAUTH

Serial No. 09/719,469

Filed: April 18, 2001



MS APPEAL BRIEF-PATENTS

Art Unit: 2834

Examiner: K. Tamai

For: Method For Mounting A Worm On An Armature Shaft Of An Armature
Of An Electric Motor, And Armature Produced By The Method

APPELLANTS' BRIEF (37 CFR 1.192)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: October 24, 2003

Sir:

This Brief is filed in support of the Notice of Appeal filed on July 11, 2003,
appealing the Examiner's decision of making final a rejection of claims 8, 9 and 12-14.

This Brief is transmitted in triplicate.

The fee for this Appeal Brief of \$330 should be charged to Deposit Account No.
07-2100 by the attached deposit account form, submitted in duplicate.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is:

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II. RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences. None

III. STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN APPLICATION - Seven (7)

Claims in the application are: 8-14.

B. STATUS OF ALL THE CLAIMS

1. Claims canceled: 1-7.
2. Claims withdrawn from consideration but not canceled:
None.
3. Claims pending: 8-14.
4. Claims allowed: 10 and 11.
5. Claims rejected: 8, 9 and 12-14.

C. CLAIMS ON APPEAL

The claims on appeal are: 8, 9 and 12-14.

IV. STATUS OF AMENDMENTS

A first amendment under 37 CFR 1.116 was filed on March 7, 2003. In an Advisory Action mailed June 27, 2003, the Examiner indicated that the amendment would not be entered for purposes of appeal.

A second amendment under 37 CFR 1.116 has been filed concurrently with the filing of this appeal brief. The second amendment under 37 CFR 1.116 represented claims 10 and 11 in independent. No amendments to claims 8, 9 and 12-14 were presented in the second amendment under 37 CFR 1.116. In the final rejection, the examiner indicated that claims 10 and 11 were directed to allowable subject matter. Thus, it is presumed that the second amendment under 37 CFR 1.116 has been or will be entered.

V. SUMMARY OF THE INVENTION

A method for producing an armature shaft of an electric motor having a worm, wherein the worm (30) is produced, at the end of the armature assembly (10), by reshaping the armature shaft (12). Specification, page 2, lines 8-13.

The reshaping the armature shaft may be produced by rolling. Specification, page 3, lines 10 and 11.

The worm (30) may have a greater outer diameter than does the armature shaft (12) over its remaining length. Specification, page 2, lines 13-17.

The armature shaft of the invention includes a tubular bearing seat (26), whose outer diameter is at least as great as an outer diameter of the worm (30), mounted on the armature shaft (12) between the worm (30) and other parts (14, 18, 20) of the armature (10) that are placed on the armature shaft (12). Specification, page 3, line 12- page 4, line 8.

The armature shaft of the invention includes a shaft bearing (28) mounted directly on the armature shaft (12), between the worm (30) and other parts (14, 18, 20) of the armature (10) that are placed on the armature shaft (12). Specification, page 4, lines 9-19.

VI. ISSUES

1. Whether claims 8 and 9 are anticipated under 35 U.S.C. 102(b) by Kobayashi et al (US 4,589,299) (hereinafter, "Kobayashi").

2. Whether claims 8, 9 and 12-14 are anticipated under 35 U.S.C. 102(b) by Thrasher, Jr. et al (US 4,885,948) (hereinafter, "Thrasher").

VII. GROUPING OF THE CLAIMS

With respect to issue 1, claim 9 stands or falls with claim 8. With respect to issue 2, claims 8 and 9 are grouped together, claims 12, 13 and 14 are grouped separately from claims 8 and 9 and from each other and separate arguments for patentability are presented for each of claims 12, 13 and 14.

VIII. ARGUMENTS

ISSUE 1.

Claims 8 and 9 are not anticipated under 35 U.S.C. 102(b) by Kobayashi.

The examiner has determined that

Kobayashi teaches a worm formed on the end of an armature shaft by rolling with a sleeve bearing between the armature and the worm. The method of making is inherent in the disclosed structure.

Final Rejection, page 2.

Claim 8 is directed to a method for producing an armature shaft of an electric motor having a worm and clearly requires that "the worm (30) is produced, at the end of the armature assembly (10), by reshaping the armature shaft (12)." Nevertheless, the examiner maintains that claim 8 does not require "that the worm must be formed after the mounting of the armature assembly [on the armature shaft]." Final Rejection, page 3. Appellant submits that the language "at the end of the armature assembly" does require that the worm must be formed after the mounting of the armature assembly¹ on the armature shaft.

¹ The meaning of term "armature assembly" can be gleaned from a reading of appellant's specification, page 1, which reads, in part:

It is known to produce a worm by reshaping, in particular by rolling an armature shaft of an electric motor in one piece with the armature shaft. Next, the armature is assembled from its individual parts; that is, for instance an armature lamination packet, a commutator and a bearing are placed on the armature shaft. The armature lamination packet can already be provided with armature windings when it is placed on the armature shaft, or the armature windings are wound onto the armature lamination packet placed on the armature shaft. To enable placing the individual parts of the armature onto the armature shaft, an outer diameter of the worm produced by reshaping on the armature shaft must not be any greater than a diameter of the armature shaft over the remaining length of the armature shaft. This has the disadvantage that an armature shaft of large diameter is necessary, or the worm must have a small diameter, and this

During the examination process, the claims of an application must be given their broadest reasonable interpretation consistent with the specification. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550 (CCPA 1969). Appellant's original specification teaches that

In the method according to the invention having the characteristics of claim 1, first the armature is assembled from its individual parts; that is, the armature lamination packet, commutator and sliding and/or roller bearings are for instance placed in the armature shaft, and next the worm is produced by reshaping of the armature shaft. In this way, it is possible to produce the worm with a larger diameter than the remaining armature shaft, since the individual parts of the armature do not have to be placed on the armature shaft past the worm.

Specification, page 2, line 8-17. Also, original claim 1, which is a part of the original disclosure of the application, states that

1. A method for mounting a worm on an armature shaft of an armature of an electric motor, characterized in that the worm (30) is produced, at the end of the assembly of the armature (10) from its individual parts (12, 14, 18, 20, 26), by reshaping for the armature shaft (12).

In view of the above, there should be no debate that the language "the worm (30) is produced, at the end of the armature assembly (10), by reshaping the armature shaft (12)" requires that the individual parts of the armature be assembled on the armature shaft before the worm is produced. Accordingly, the examiner's position that claim 8 does not require that the worm must be formed after the mounting of the armature assembly on the armature shaft is an unreasonable construction of the claim language.

limits a load-bearing force and thread pitch of the worm.

and page 6, lines 1-5, which read:

After the mounting of the commutator 14, the armature lamination packet 18 with the armature windings 20, and the bearing seat 26 on the armature shaft 12, the end of the armature shaft protruding from the bearing seat 26 is shaped by rolling into a worm 30.

Kobayashi et al describes an armature shaft onto which, by means of rolling, two worms are formed, one with counterclockwise threads and the other with clockwise threads. The outer diameter of these worms is the same as or less than the diameter of the remainder of the armature shaft 16. It is, therefore, possible for all the components parts of the armature shaft, for example, the bearing 31, commutator 15, and armature packet 14, to be thrust onto the armature shaft 16 over the worm after the rolling operation. In Kobayashi et al, there is no teaching or suggestion that the worm is formed after all the armature component parts are assembled on the armature shaft as required by claim 8. On the contrary, the larger diameter of the armature shaft is an indication of the order of assembly, which is conventional in the prior art, that is, first, the worm is produced by shaping and, then, the individual parts of the armature are mounted to the shaft. One of ordinary skill in the art would not have been taught by Kobayashi et al to first mount the individual component parts of the armature on the armature shaft and then, only after completion of the assembly, forming the worm by reshaping. The examiner's finding that the method of claim 8 is inherent in the disclosed structure of Kobayashi has no basis in fact.

To support a rejection of a claim under 35 U.S.C. 102(b), it must be shown that each element of the claim is found, either expressly described or under principles of inherency, in a single prior art reference. See Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984). To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and

that it would be so recognized by persons of ordinary skill. Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id. at 1269, 20 U.S.P.Q.2d at 1749 (quoting In re Oelrich, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981). In re Robertson, 49 USPQ2d 1949 (Fed. Cir. 1999).

There is no explicit statement in Kobayashi that the worm is produced, at the end of the armature assembly, by reshaping the armature shaft. In addition, there is no extrinsic evidence of record establishing that the missing descriptive matter is necessarily present in the thing described in Kobayashi, and that it would be so recognized by persons of ordinary skill. The examiner's rejection is based on speculation or possibilities, not fact. It naturally follows that claims 8 and 9 are not anticipated by Kobayashi.

ISSUE 2.

Claims 8, 9 and 12-14 are not anticipated under 35 U.S.C. 102(b) by Thrasher.

The examiner's finding of fact with respect to Thrasher is set forth at pages 2 and 3 of the Final Rejection. Once again the examiner finds that the method set forth in claim 8 is inherent in the structure disclosed by Thrasher and that claim 8 does not require that the worm must be formed after the mounting of the armature assembly on the armature shaft.

Thrasher shows an electric motor with an armature shaft 18, onto which a worm is formed by means of rolling. The shaft is supported in the housing 12 by means of bearings 24 and 26. Disposed between the armature packet 16 and the worm 20 is a damper 28, which is intended to damp vibration of the armature during operation. The inner diameter 36 of the damper is greater than the outer diameter of the worm 20. Thrasher teaches, beginning at col. 2, line 67, that “[t]he inner diameter 36 of the collar 30 is large enough so that the damper 28 can slide over the worm 20, which may be formed by rolling and therefore have a diameter greater than that of the armature shaft 18.” Also, Thrasher teaches, beginning at col. 3, line 14, that “[t]he fingers 32 [of the damper 28] are of a spring-like nature that allows the armature shaft 18, including worm 20, to be installed into the gear housing 14 through the damper 28.” That is, the damper 28 is thrust over the armature shaft expressly after the forming of the worm on the shaft. Thus, Thrasher specifically teaches away from the limitation found in appellant’s claim 8 requiring that the worm be formed on the shaft at the end of the armature assembly.

Appellant’s arguments concerning the proper interpretation of the language “the worm (30) is produced, at the end of the armature assembly (10), by reshaping the armature shaft (12)” in claim 8 have already been set forth in the appellant’s arguments regarding Issue 1. Those arguments also apply with respect to Issue 2.

There is no explicit statement in Thrasher that the worm is produced, at the end of the armature assembly, by reshaping the armature shaft. In addition, there is no extrinsic evidence of record establishing that the missing descriptive matter is

necessarily present in the thing described in Thrasher, and that it would be so recognized by persons of ordinary skill. The examiner's rejection is based on speculation or possibilities, not fact. It naturally follows that claims 8 and 9 are not anticipated by Thrasher.

Claim 12 is directed to an armature shaft produced by the method of claim 8, wherein the worm 30 has a greater outer diameter than does the armature shaft 12 over its remaining length. Since Thrasher does not teach the method of making an armature shaft as set forth in claim 8, it does not anticipate claim 12.

Each of claims 13 and 14 is dependent on claim 12. Claim 13 additionally requires a tubular bearing seat 26 (see Fig. 1), whose outer diameter is at least as great as an outer diameter of the worm 30, mounted on the armature shaft 12 between the worm and other parts of the armature that are placed on the armature shaft. Claim 14 requires a shaft bearing 28 (see Fig. 2) mounted directly on the armature shaft 12, between the worm 30 and other parts of the armature that are placed on the armature shaft.

The examiner has made a finding of fact that "[t]he bearing seat of Thrasher is mounted on the shaft between the worm and the armature core because the spring fingers maintain sliding contact with the shaft because the inner diameter of the fingers is less than the shaft" (Final Rejection, page 3). This finding of fact by the examiner is clearly erroneous. What the examiner describes as a "bearing 28" (Final Rejection, page 2) is, in fact, described in Thrasher as a damper. In Thrasher, the actual shaft bearings 24 and 26 are shown to be mounted at the opposite ends of the shaft. See

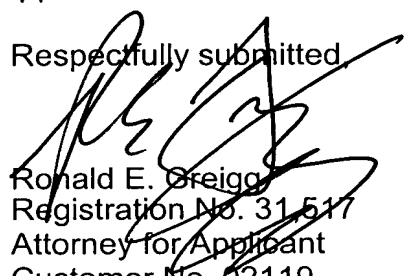
Thrasher, Fig. 1 and col. 2, lines 47-50. Further, Thrasher explicitly teaches that the damper 28 is press fitted into the gear housing 14 "sufficiently tight that the damper will be lodged in place and stay put." See Thrasher, col. 2, lines 64-66. Thrasher's "bearing" 28 is mounted on the gear housing, not on the armature shaft as required by claims 13 and 14.

To support a rejection of a claim under 35 U.S.C. § 102(b), it must be shown that each element of the claim is found, either expressly described or under principles of inherency, in a single prior art reference. See Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984). Thrasher does not describe an armature having a tubular bearing seat or a shaft bearing mounted on the armature shaft between a worm and the other parts of the armature that are placed on the armature shaft. Thus, Thrasher does not anticipate either claim 13 or claim 14.

IX. APPENDIX OF CLAIMS

An appendix of the claims in this application is attached.

Respectfully submitted,


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CLAIMS ON APPEAL

8. A method for producing an armature shaft of an electric motor having a worm, wherein the worm (30) is produced, at the end of the armature assembly (10), by reshaping the armature shaft (12).

9. The method of claim 8, wherein that the worm (30) is produced by rolling.

12. The armature shaft produced by the method of claim 8, wherein the worm (30) has a greater outer diameter than does the armature shaft (12) over its remaining length.

13. The armature shaft of claim 12, wherein that a tubular bearing seat (26), whose outer diameter is at least as great as an outer diameter of the worm (30), is mounted on the armature shaft (12) between the worm (30) and other parts (14, 18, 20) of the armature (10) that are placed on the armature shaft (12).

14. The armature shaft of claim 12, wherein that a shaft bearing (28) is mounted directly on the armature shaft (12), between the worm (30) and other parts (14, 18, 20) of the armature (10) that are placed on the armature shaft (12).